

REMARKS

The foregoing amendment amends claims 16, 19, 20, 21, 22, 37, 38 and 39, and adds new dependent claims 43 and 44. Pending in the application are claims 16-22 and 24-25, 27-28, 30-31 and 33-34 and 36-44, of which claims 16, 19, 20, 22, 37, 38 and 39 are independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Independent claims 16, 19, 20, 22 and 37 are amended to specify that the step of isolating the cells includes using a buffer to absorb pressure pulses. Support for the amendment can be found throughout the application as originally filed, at least, for example on page 5, lines 18-20, page 9, lines 11-12 and 18-19, page 14, lines 9-15, original claim 4, and as shown in Figure 5.

Independent claims 16, 19, 20, 22, 37 and 39 are also amended for purposes of clarity. For example, the claims are amended to change the phrase “microfluidic cell sorting system” to the phrase --microfluidic cell sorting device--- in line 2, to clarify that the population of cells to be sorted is provided in a mixture, and to clarify that an actuator in the cell sorting device applies the pressure pulse to selectively deflect selected cells.

Claim 22 is also amended in the last phrase to have normal, rather than bold, typeface.

Claims 19, 20 and 21 are amended to more positively recite certain steps. *No new matter is added.*

Amendment and/or cancellation of the claims is not to be construed as an acquiescence to any of the objections/rejections set forth in the instant Office Action, and was done solely to expedite prosecution of the application. Applicants reserve the right to pursue the claims as originally filed, or similar claims, in this or one or more subsequent patent applications.

Claim Objections

Regarding the objection to claim 22, Applicants have amended the last phrase to have normal, rather than bold, typeface.

Double Patenting Rejection

In the Office Action, the Examiner rejects claims 16-20, 22, 27, 30, 33, 37 and 39-41 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of U.S. Patent Number 6,808,075 and claims 1-26 of U.S. Patent Number 6,877,528 in view of the Keck reference and/or the Deiss reference and/or the Bierre reference.

Applicants respectfully submit that the claims distinguish patentably over Applicants' prior patents in view of the cited references. Furthermore, the present application claims priority to U.S. Patent Number 6,808,075 and U.S. Patent Number 6,877,528. Therefore, the common subject matter in the present application would expire with the expiration of U.S. Patent Number 6,808,075 and U.S. Patent Number 6,877,528. In addition, Applicants maintain that the combination of the Keck reference and/or the Deiss reference and/or the Bierre reference with Applicants' prior art is improper and does not render the claims obvious.

If necessary, Applicants will file a terminal disclaimer once all other outstanding objections and rejections are resolved to overcome the obviousness-type double patenting rejection.

35 U.S.C. §112 Rejections

The Examiner rejects claims 16-20, 22, 27, 30, 33, 36, 37 and 39-41 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particular point out and distinctly claim the subject matter of the invention. Applicants have amended the claims to clarify the invention, as requested by the Examiner.

In particular, independent claims 16, 19, 20, 22, 37 and 39 are amended to change the phrase "microfluidic cell sorting system" to the phrase --microfluidic cell sorting device--- in line 2 to clarify the Examiner's uncertainty. The claims are also amended to clarify that the population of cells to be sorted is provided in a mixture that passes through the microfluidic cell sorting device. The amendments to the claims also clarify that an actuator in the microfluidic cell sorting device applies the pressure pulse to selectively deflect selected cells.

Therefore, Applicants request that the rejection under 35 U.S.C. §112 be reconsidered and withdrawn.

Claim Rejections Under 35 USC §103

In the Office Action, the Examiner rejects claims 16-20 and 37 under 35 U.S.C. §103(a) as being unpatentable over Gohde (U.S. Patent Number 4,756,427) in view of either Keck (U.S. Patent Number 6,803,194) or Deiss (U.S. Patent Number 6,057,111). The Examiner considers that it would be obvious to use the Gohde device to sort based on phenotype in view of the Keck and Deiss references.

Applicants respectfully traverse the rejection and submit that the pending claims distinguish patentably over the cited references, even in combination. Furthermore, Applicants submit that motivation to combine the references to reach the conclusion that the claims are obvious is lacking.

To expedite prosecution, Applicants have amended independent claims 16, 19 and 20 to specify that the method includes use of a buffer for absorbing pressure pulses in a sorting channel. The use of a buffer allows absorption of the pressure pulse after the pressure pulse selectively deflects a particle to prevent disturbance to the flow of the non-selected particles in the stream of particles being sorted. The cited references, alone or in combination, fail to disclose a cell sorting system used for sorting based on phenotype that employs a buffer for absorbing pressure pulses in a sorting channel.

The Examiner also rejects claims 22 and 36 under 35 U.S.C. §103(a) as being unpatentable over Gohde (U.S. Patent Number 4,756,427) in view of either Keck or Bierre (U.S. Patent Number 5,795,727). Applicants' submit that claims 22 and 36 distinguish patentably over the combination of the Gohde in view of the Keck or Bierre. The cited references, alone or in combination, fail to disclose a step of sorting cells that employs a buffer to absorb pressure variations in a sorting channel.

In addition, motivation to modify the Gohde reference using the teachings of the Keck and/or Bierre reference is lacking. Therefore, the rejection under 35 U.S.C. §103(a) is improper.

Applicants respectfully submit that motivation to modify the teachings of the cited references is lacking. Under U.S. law, even if a combination of the references teaches every element of the claimed invention, without a motivation to combine, a rejection based on a *prima facie* case of obviousness is improper.

In determining whether a case of *prima facie* obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification. The prior art must provide the motivation to make a change to its own teachings to arrive at the invention under rejection. That is, it is not sufficient that the prior *could be* so modified; instead the prior art must teach or suggest that the prior art *should be* so modified.

There is no teaching or suggestion in the Gohde reference that would motivate one of ordinary skill in the art to look to the Keck reference, the Deiss reference and/or the Bierre reference to use the apparatus of Gohde in such a manner.

It is well-established law that the motivation to modify the teachings of a reference or to combine references must come from the references themselves, and cannot be derived from the teachings of the application under examination. However, none of the cited references, alone or in combination, teaches or suggests the claimed invention, or provide any motivation for modification or combination of their teachings. Therefore, the claims are patentable over the cited references and in immediate condition for allowance.

CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If, however, the Examiner considers that obstacles to allowance of these claims persist, we invite a telephone call to Applicants' representative.

Applicants believe no fee is due with this Amendment. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. TGZ-021CP2 from which the undersigned is authorized to draw.

Dated: June 8, 2006

Respectfully submitted,

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